

REMARKS

Claims 55-69 were pending as of the action mailed on November 12, 2008. Claims 55, 60, and 65 are in independent form.

Claims 60-64 are being amended. No new matter has been added. Support for the amendments can be found, for example, in Fig. 2 and on page 8, lines 18-23, and page 9, lines 4-6 of the specification.

Reconsideration of the action is respectfully requested in light of the foregoing amendments and the following remarks.

Claim Objections

Claims 60-64 were objected to for alleged informalities. Specifically, the Office states that “[t]he limitation of ‘operable to cause data’ should be changed to ‘causing a’ since the former does not yield a positive recitation.” Applicant respectfully disagrees. However, as noted below, Applicant has amended claims 60-64 in a way that moots the objection.

35 U.S.C. § 112 Rejections

Claims 60-64 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Office alleges that the term “computer program product” is not defined in the Specification. Without conceding the Office’s rejection, Applicant has amended claims 60-64 to remove the language in question.

Claims 60-64 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Specifically, the Office states that “[i]t is unclear as to whether the computer program product contains the computer readable medium or just program code[.]” Without conceding the Office’s rejection, Applicant respectfully submits that the amendments to claims 60-64 overcome the rejection.

35 U.S.C. § 103 Rejections

Claims 55, 59, 60, 64, 65, and 69 were rejected under 35 U.S.C. § 103(a) for allegedly being unpatentable over *Su et al.*, *A Corpus-Based Approach to Automatic Compound*

Extraction, in *Proceedings of the 32nd Annual Meetings on Ass'n for Computational Linguistics*, 1994 ("Su") in view of Frantzi *et al.*, *Extracting Nested Collocations*, 1996 ("Frantzi").

Applicant respectfully traverses the rejection.

Claim 55 requires "dividing each n-gram into n-1 pairs of two adjacent segments" and "calculating a likelihood of collocation for each pair of segments of the n-gram" (emphasis added), where $n > 2$. Thus, the claim recites that a trigram xyz is divided into two pairs of segments, the pair (xy, z) and the pair (x, yz) . The likelihood of collocation is calculated for each pair of segments (xy, z) and (x, yz) . This feature is not taught by Su.

In marked contrast, Su calculates a mutual information $I(x;y;z)$ of a trigram xyz as a whole, by applying a formula $\log_2(P_D(x,y,z)/P_i(x,y,z))$ (Su, p. 243, right column, line 6 from the bottom). Therefore, Su does not divide an n-gram into multiple pairs of segments and calculate a likelihood for each of the pairs, as recited by the claim. Applicant submits that claim 55 is not made obvious by Su.

Applicant further submits that Frantzi does not teach "dividing each n-gram into n-1 pairs of two adjacent segments" as recited in claim 55. In contrast, Frantzi discusses extracting candidate collocation "for all smaller n-grams a in descending order." (Frantzi, p. 43, right column, middle section of the algorithm). Therefore, neither reference teaches the features of dividing an n-gram of length > 2 into the n-1 possible pairs of adjacent segments and calculating a likelihood of collocation for each pair of segments. Applicant respectfully submits that claim 55 is not made obvious by Su in view of Frantzi and is in condition for allowance. For at least the same reason, Applicant submits that claims 59, 60, 64, 65, and 69 are in condition for allowance.

Claims 56, 58, 61, 62, 66, and 68 were rejected under 35 U.S.C. §103(a) for allegedly being unpatentable over Su in view of Frantzi as applied to claims 1, 6, 13, and 24 and further in view of Manning *et al.*, *Foundations of Statistical Natural Language Processing*, The MIT Press, 1999 ("Manning").

Applicant believes the Office meant claim 63 instead of claim 62. Applicant respectfully traverses the rejection.

Applicant submits that Manning does not teach "dividing each n-gram into n-1 pairs of two adjacent segments", including n-grams where $n > 2$, as required in claim 55. In contrast,

Manning discusses applying a likelihood ratio test to collocation discovery, and examining two alternative explanations for the occurrence frequency of a bigram (Manning, p. 172, § 5.3.4, second paragraph). Therefore, Applicant submits that dependent claims 56, 58, 61, 63, 66, and 68 are in condition for allowance.

Allowable Subject Matter

Claims 57, 62, and 67 were objected to as being dependent upon a rejected base claim. Applicant respectfully submits that for at least the reason stated above for claims 55, 60, and 65, claims 57, 62, and 67 are allowable as dependent claims from allowable claims and on their own merits.

Conclusion

For the foregoing reasons, Applicant submits that all claims are in condition for allowance.

By responding in the foregoing remarks only to particular positions taken by the examiner, Applicant does not acquiesce with other positions that have not been explicitly addressed. In addition, Applicant's selecting some particular arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, Applicant's decision to amend or cancel any claim should not be understood as implying that Applicant agrees with any positions taken by the examiner with respect to that claim or other claims.

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Respectfully submitted,

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